

ABSTRACT OF THE DISCLOSURE

A gas sensor is described for detecting a physical property of a measuring gas, including detecting the oxygen concentration in the measuring gas. The gas sensor includes a sensor element having a diffusion barrier, which is arranged between a first solid electrolyte layer and a second solid electrolyte layer. The diffusion barrier has a necked-down portion, i.e., a concave profile, between the first and the second solid electrolyte layer. Accordingly, a first area, which the diffusion barrier occupies in a plane which lies between the side of the first solid electrolyte layer (facing the diffusion barrier) and the side of the second solid electrolyte layer (facing the diffusion barrier), is smaller than a second area on which the diffusion barrier covers the first or the second solid electrolyte. In order to manufacture the sensor element, a first layer made of a paste containing a pore-forming material is applied onto a blank foil, and after that, a second layer made of a paste containing a pore-forming material is applied.